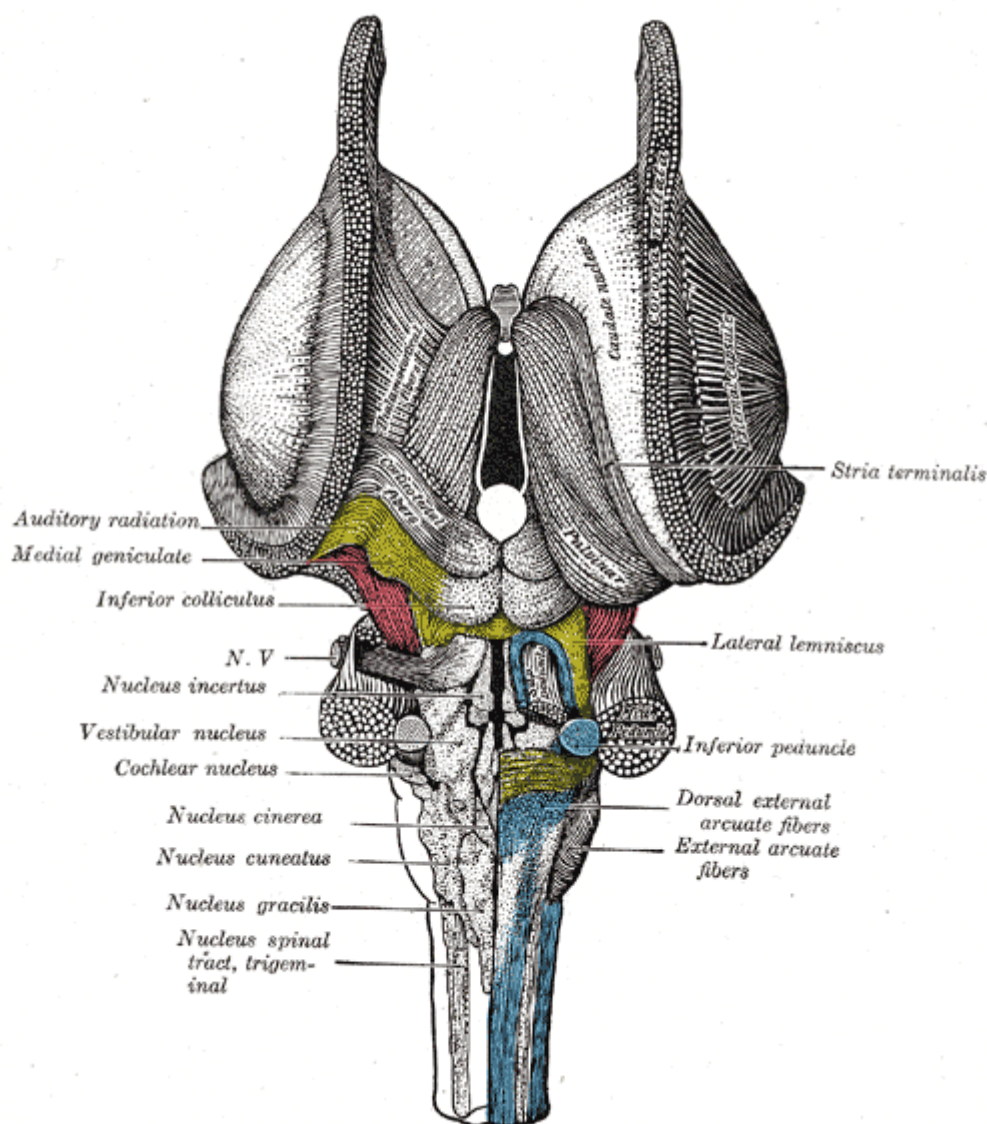


The cochlear nuclear complex comprises two nuclei, the ventral cochlear nucleus and the dorsal cochlear nucleus. The ventral cochlear nucleus is unlayered whereas the dorsal cochlear nucleus is layered. **Auditory nerve** fibers, fibers that travel through the auditory nerve (also known as the **cochlear nerve** or **eighth cranial nerve**) carry information from the inner ear, the cochlea, on the same side of the head, to the nerve root in the ventral cochlear nucleus. At the nerve root the fibers branch to innervate the ventral cochlear nucleus and the deep layer of the dorsal cochlear nucleus. All acoustic information thus enters the brain through the cochlear nuclei, where the processing of acoustic information begins. The outputs from the cochlear nuclei are received in higher regions of the auditory brainstem.



In the absence of appropriate surface landmarks and imaging guidance, to gain tonotopic access to the human cochlear nucleus with surface and depth electrode remains a major challenge. Due to its location close to the surface, the dorsal cochlear nucleus is vulnerable to surgical manipulation and to tumors <sup>1)</sup>.

<sup>1)</sup>

Rosahl SK, Rosahl S. No easy target: anatomic constraints of electrodes interfacing the human cochlear nucleus. *Neurosurgery*. 2013 Mar;72(1 Suppl Operative):58-64; discussion 65. doi: 10.1227/NEU.0b013e31826cde82. PubMed PMID: 22895407.

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